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# TELEPHONY

## THE JOURNAL OF THE TELEPHONE INDUSTRY

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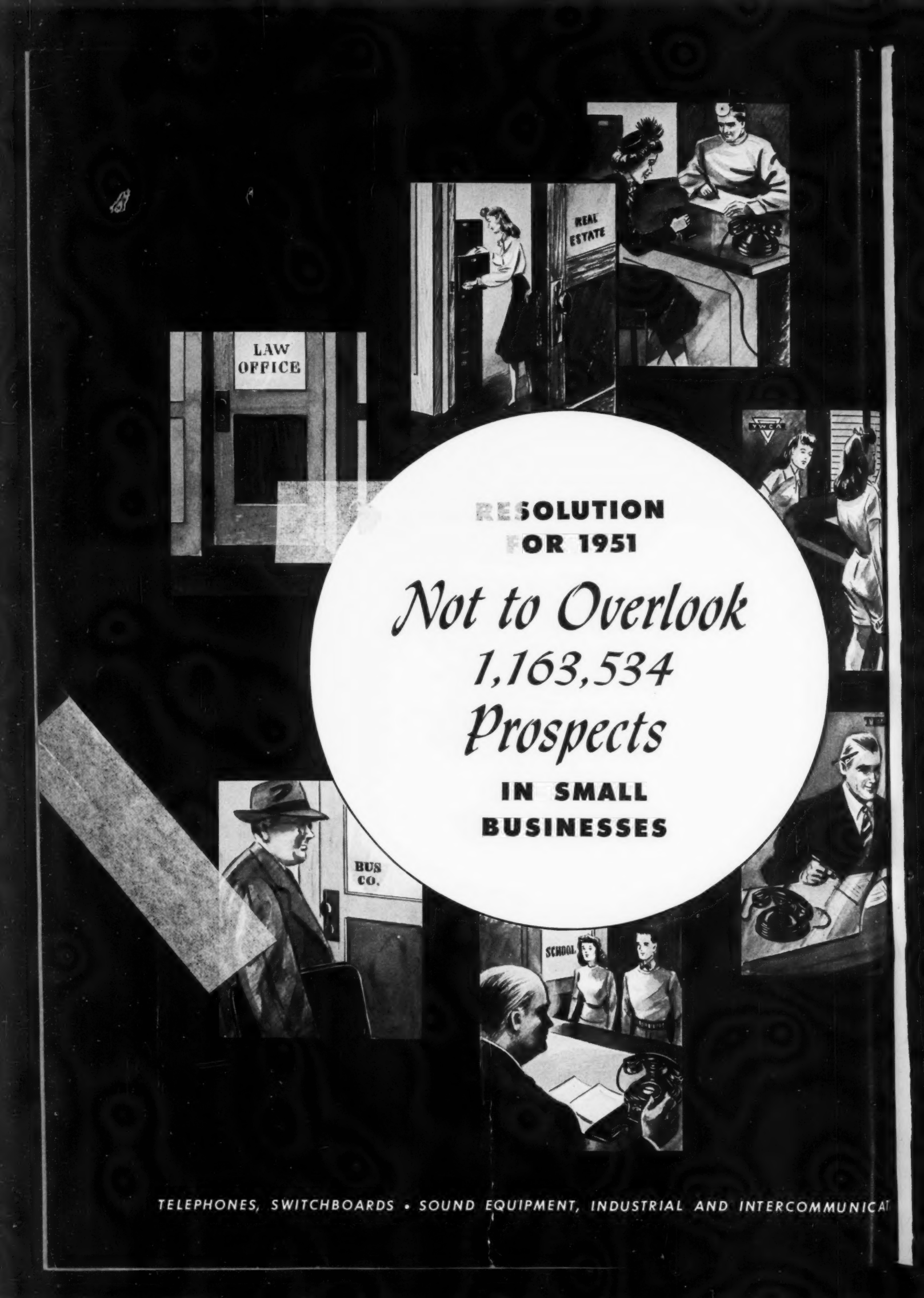


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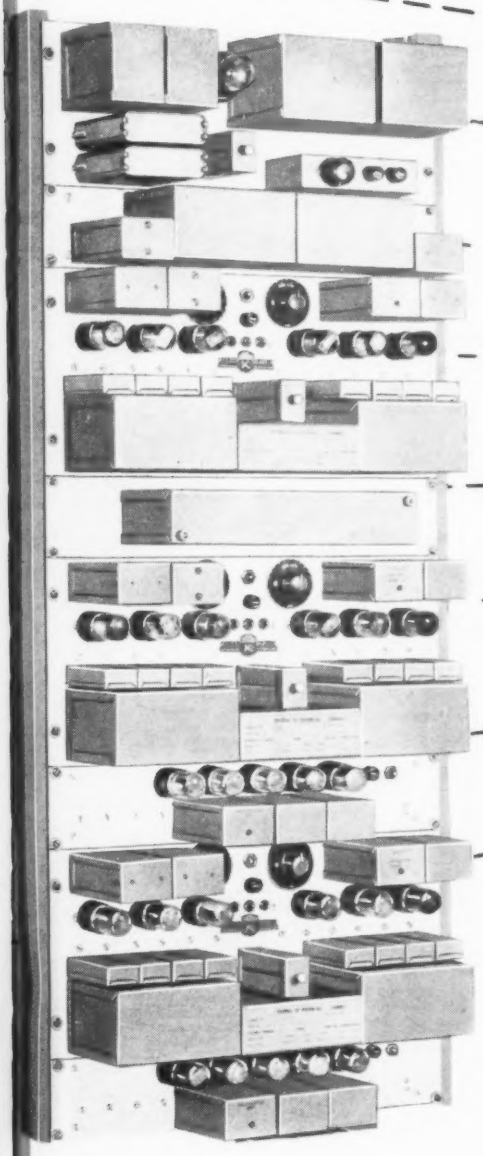

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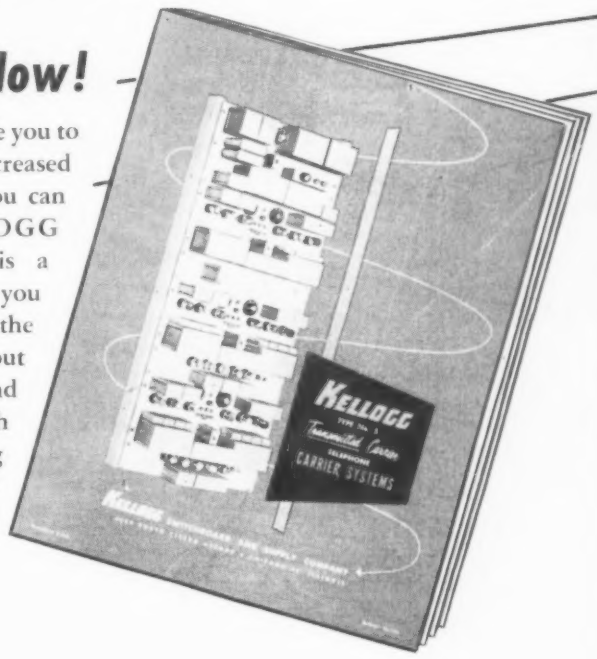


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# FLASHES AND PLUGS

**SHIPSHAPE FOR INSPECTION.** The top brass at Valley Forge Military Academy near Wayne, Pa., finally found out why B Company's barracks was always spic and span during surprise inspections. The cadets had rigged up an electrical two-way interroom system, which enabled the boys at the front of the building to tip off B Company, in the rear of the building when an inspection party hove into view.

• • •

**KEEPING HOME HAPPY.** The *Blue Bell*, publication of the Bell Telephone Co. of Canada, describes a law office sign reading, "Employes of this office who feel they *must* apply perfume to the lobe of the ear will apply it to the right and not to the left ear."

The reason for this unusual injunction is simple. When girls used the telephone, a delicate bouquet lingered in the earphone. This fairy fragrance was imparted to the auditory protuberances of males who used the telephone afterwards. And it is difficult for a man to make his wife understand why his ear should smell like lilies of the valley.

• • •

**ONLY A PAPER SANTA.** Four police cars in Worcester, Mass., raced to a filling station after a telephone call from an unidentified person who said someone was on the roof apparently trying to break in. The "burglar" turned out to be a cardboard Santa Claus climbing down a cardboard chimney.

• • •

**SEASONAL SALES TALK.** The telephone rang sharply in a Baltimore, Md., home during the Christmas season.

"This is Western Union," said the voice. Fifty-seven varieties of calamity that might have befallen members of the housewife's family raced through her mind.

"Western Union?" she echoed. "Yes?"

"Would you," asked the voice, "like to send Christmas greetings to your children from the North Pole, to be signed 'Santa Claus'? We have several nice Santagrams that run 10 words, and some others that run longer. The children will really get a thrill when they receive their . . ."

"No, thanks," sighed the relieved woman, "I've just gotten enough thrill to do the entire family for the season."

• • •

**REASON AND LOGIC.** A Maryland prisoner, over the hill from the penitentiary recently 76 days after disappearing while at work outside the walls as a trusty, explained on his recapture that he had fallen from the prison truck and been left behind. He had not called to announce his whereabouts because he had no nickels with him.

• • •

**APPROPRIATE.** In St. Louis, Mo., not long ago, telephone people received a request for a booklet on "Correct Phone Usage." It came from Cut Off, La.

Telephony
THE JOURNAL OF THE TELEPHONE INDUSTRY

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# IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH
WASHINGTON EDITOR

REA picks up speed on telephone loan allocations during last six months. . . . Future allocations depend upon appropriation. Housing and office shortages spur decentralization of government agencies. FCC makes annual report.

### REA Loans for 1950

IT IS interesting to compare the record of the Rural Electrification Administration for telephone loans during the first six months of 1950 with the last six months.

It would indicate that REA picked up considerable speed on its rural telephone loan program during the latter part of the year, and now enters the new year in high gear. It will doubtless continue that pace until it runs out of money or until the new Congress indicates how much money REA will be getting for the fiscal year beginning July 1.

Such appropriation bills (covering this period for various government agencies) will not get before Congress until February and probably not pass much before the deadline date of the new fiscal year. But if the 82nd Congress reduces REA to a fraction of the funds approved for the current year, we can look for REA loans to start tapering off some time before the fiscal deadline.

But it must be kept in mind that REA already has a pretty comfortable "sock" out of which to make loans between now and next July 1. The REA enters the new year with about $18,427,000, which is almost as much as it was able to earmark for loans during the whole calendar year of 1950, and more than it was able to earmark during the last six months. It will be recalled that Congress originally appropriated $32,500,000 for REA rural telephone loans to be made between July 1, 1950, and July 1, 1951. But REA had a "carry over" of an unexpected balance from the previous fiscal year of $21,500,000.

Last October—pursuant to the nonmilitary spending cut ordered by Congress—the Budget Director slashed REA's pocketbook by $19,730,000. So this left slightly less than $35,000,000 for REA to spend on telephone loans between July 1, 1950, and July 1, 1951. Inasmuch as it approved loans amounting to only $16,300,000 during the last six months of 1950, REA therefore has a balance of nearly $18,500,000 for telephone loans.

Going back to a calendar year basis (as distinguished from a fiscal year), figures on REA's 1950 performance are as follows: Approximately 40 per cent of the loan allocations made during 1950 were made during the last two months. A mid-year appraisal of the nine-month old program disclosed that 17 telephone loans had been made, totaling $3,500,000. On Nov. 1, when the program had reached its first-year mark, it was reported that 41 loan allocations had been made, totaling "over $12,000,000."

As the year ended, it is shown that about 60 loans have been allocated, totaling approximately $20,000,000. With additional loan allocations anticipated during the last week of the year, it is estimated that the ratio of company loans to co-op loans will be about 2 to 1 — 40 company loans and 20 co-op loans. However, an examination of 55 loans approved indicates a more balanced money ration—$8,416,000 for companies and $7,776,000 for co-ops. REA sources point out that most co-op loans went to groups forming new organizations requiring more extensive capital investments.

The program is affecting about 65,000 telephone subscribers, approximately 41,000 of whom will be receiving telephone service for the first time. The remaining number are to receive improved service. At the close of 1950, REA had on hand, or had considered, 711 loan applications totaling about $84,000,000.

### Can Capital Communications Be Bombproof?

There is more talk than action about decentralization and civilian defense during the current war emergency. No doubt there will be population shifts due to war plant activities in certain areas. But this is going to look like the opposite of decentralization, if anything. The war plants are going to attract more people than ever from rural and semirural areas; and few of the plants will be located in the wide open spaces or anything like it.

We hear a lot of talk about the fear of bombing in cities such as Chicago, Pittsburgh, New York, and Washington. But the talk is not being translated into action as far as observers can see. There are a lot of factors behind the movement to, from and between cities in the United States. But the fear of bombing is apparently not a very important factor as yet.

In the nation's capital, however, we are getting wind of decentralization plans for purposes other than civilian defense. Here it seems to be just a case of old-fashioned housing shortage for government bureaus. Some of the regulatory commissions are getting prepared for orders to shift out into the hinterlands to make space for the new and rapidly mushrooming war agencies. Maybe REA will be among those bureaus to get their marching orders.

As for maintaining communications between Washington and the rest of the country in the event the nation's capital is bombed, a senate sub-committee (of the Senate Public Works Committee) last month received some interesting testimony. The sub-committee was informed about underground telephone and teletype lines not only connecting Washington and buildings in outlying sites of Maryland and Virginia, but also linking in a nationwide network of communications.

The sub-committee, headed by Senator Holland (D., Fla.), was holding hearings on a $190,000,000 dispersal plan, which Congress tentatively approved but failed to enact in the final

hours of the session. Doubtlessly it will be voted again early in the new session by the 82nd Congress.

The testimony on the communication lines, which would be placed underground, was given by W. E. Reynolds, public buildings commissioner in the General Services Administration. Mr. Reynolds said the cost has been estimated at $6,200,000. He said also that $41,000,000 would be required for highway work in connection with the buildings on the eight sites.

Mr. Reynolds testified also that the present temporary government office buildings in Washington are virtual firetraps, and that he does not think "a single life would remain in event of an atomic bomb attack." It has been stressed in testimony, however, that government employes would have to take their chances with others and that the dispersal program's primary purpose is to keep necessary agencies functioning.

Under the plan, the temporary buildings, where 45,000 persons now work, would be razed. Eight new permanent buildings in the outlying areas would provide for 40,000 workers, and ultimately 40,000 more could be provided for in temporary buildings on the outlying sites.

### FCC Report

The Federal Communications Commission has recently issued its 16th annual report. Although not released until early in January, 1951, this report covers only the full fiscal year of 1950—not the calendar year. In other words it covered the 12 months' period ending July 1, 1950.

Comparatively speaking, the FCC report was fairly routine, showing commendable progress and attention to important details, but no unusual activity or exceptional development. The commission closed the year with a working force of 1,285 persons, which was 55 less than the preceding year. The commission's appropriations, however, amounted to $6,729,345, or a little over $12,000 more than the previous year.

The report noted the establishment within the FCC of a unified common carrier bureau last April. It referred to the telephone industry reaching a peak development during the year of 40,000,000 telephones, $10 billion investment (more than $1 billion added during the year), and $3 billion annual revenue. Rapid progress in dial conversions, toll dialing, transcontinental microwave relay, and expansion of mobile-radio telephone services were among the plant improvements mentioned in the report.

One item of passing interest was the FCC report's note on the experience in the telegraph industry during the past year. The FCC document recalled that domestic telegraph service had been declining, both in revenue and volume of business, for several years. But during 1950 the telegraph company reached a leveling off point and has since actually registered some gains. Western Union also established a nation-wide uniform rate structure during the year and continued to modernize its facilities "thereby improving the earnings situation that had been unfavorable for several years."

The report noted progress, but no conclusion, in several of "fringe service" cases involving proposed attachments to regular telephone service—all questioned by the telephone industry. These included the "Hush-a-phone" case, the Jordaphone Corp. case, Mohawk Business Machines case, and the Burkman case. All of these cases are still pending final decision. In the Jordaphone case (an automatic telephone answering device), the commission opened a broader investigation on its own motion—which awaits hearing. The Burkman case involves a "call waiting indicator device" which the commission is studying further, after dismissing the original complaint insisting that telephone companies install them.

In the field of telephone company regulation, the FCC report noted that depreciation rates have been described for eight Bell System companies, including the AT&T Long Lines Department. Depreciation studies have been completed for one other Bell company while three more are in progress. The prescribed rates for annual depreciation expense charges were said, by the FCC report, to represent a total reduction of 10.5 per cent ($7,233,000) in the annual charges based on rates in effect prior to commission action.

### President's Message

As these lines are written before the text of President Truman's message on the State of the Union has been released, the reader will not know whether or not he asked for increased taxes in January. But whether he asks for them in January, or at a later date, is a somewhat academic point. It is certain that Congress will be confronted with new tax demands on both personal and business corporation incomes early in the year of 1951. The chances are that the new Congress will debate the issue so loud and so long that the final action will not come until some time around the middle of the year.

The need for new taxes in the face of our present international commitments is so apparent that there can be little doubt about the final outcome. According to best estimates, the federal government's expected tax revenue collections under existing laws will amount to about $50 billion a year. This includes anticipated collections under the increased income taxes voted at the regular session of the 81st Congress, and the retroactive excess profits tax bill which it was scheduled to pass early in the new year as one of its last acts.

But Treasury Secretary Snyder has already testified that spending, in the next fiscal year, will go up to $75 billion or thereabouts. This means that if the adminstration were to rest with our present federal tax income, we could expect a deficit running up to about one-third of all federal expenditures or about $25 billion a year. But deficits mean increased debt. The national debt has already jumped from $40 billion in 1939 to $256 billion as of the end of 1950.

Taxation is needed, therefore, not only to keep the deficit within bounds, but also as a curb on inflation. In other words, the government has two reasons for raising tax revenues. First of all it needs the money; second, it has to cut back mass purchasing power which would otherwise compete with the government in buying materials which are needed for the mobilization program.

Public utilities have an indirect interest in this threat of inflation. They are peculiarly vulnerable to generally rising costs. Telephone companies and other public utilities must operate under rigid rate controls while their operating costs go up without restraint (unless mandatory price and wage controls are invoked later on). Public utilities, of course, must expect to bear their own burden of direct taxation. It has been previously pointed out in this department that telephone companies are already bearing a larger share than other industries through the high excise taxes on monthly bills and on telephone toll calls. Spreading some of new taxes elsewhere, however, should help to put the brakes on an inflationary threat which is just as menacing to the telephone industry and other regulated utilities as it is to the government's own buying power.

One other angle of this tax picture which will bear prompt and close scrutiny by the new 82nd Congress is the exercise of the government's own purchasing power. If there be need to cut down mass purchasing power to keep it from competing with government military expenditures, it necessarily follows that the government itself must cut down non-essential activities. These activities not only require tax-financed appropriations from Congress but also put the federal

*(Please turn to page 36)*

# Features of Cable

# CONSTRUCTION AND MAINTENANCE

By **DANIEL SEITZ**
Member
USITA Plant Committee

[EDITOR'S NOTE: *The following is an address presented at the Plant Conference at the recent Convention of the United States Independent Telephone Association. Mr. Seitz is plant superintendent of the York (Pa.) Telephone & Telegraph Co., and is the author of a current series of articles on cable engineering, running currently in* TELEPHONY.]

* * * *

THE first feature and requisite of any proposed cable installation is the proper engineering of the job to insure first class service with the minimum of subsequent service interruptions and at a reasonable cost.

The route of the cable and whether it shall be aerial or underground, with the decision always in favor of underground when physical and economic conditions permit, are important engineering features which have a lasting effect on the functioning of the plant.

The type of cable and method of installation governs to a great extent the useful life of the cable, and every known and approved safeguard against possible mechanical or electrical damage should be provided at the time of the installation.

### Lead Sheath Cables

It is interesting to note that lead was used for water pipes, roofing, etc. in Bible times by the Romans who knew the art of soldering and lead burning. Excavations often reveal sections of these ancient pipes in almost perfect condition, proving that lead has the necessary lasting qualifications for cable sheaths.

Lead also has the following desirable characteristics: Malleability, comparatively low melting point, corrosion resistant to many gases, chemicals, etc.

Because it is pliable it may be conveniently placed on reels for shipment and installations.

The first lead shop in the United States was built by the John A. Roebling Sons Co. in 1890 for the manufacture of lead encased cables.

One of the company's first cables was a 55-pair, No. 18-gauge paper insulated cotton braid covered type.

The paper was not wrapped on the wire, but was laid on two longitudinal

DANIEL SEITZ

strips and held in place by cotton yarn. The finished cable being one and three-fourths inches in diameter.

This cable was leaded in Philadelphia and placed in conduit of the Bell telephone company in that city.

Records show that in 1917 experiments were conducted to ascertain what metals combined with lead would provide a more satisfactory cable. At that time antimony, tin, copper, nickel and bismuth were used in varying amounts. These experiments resulted in the adoption of a 1 per cent antimony content for telephone cables except those for the interior of buildings, etc.

### Aerial Lead Sheath Cable Supports

No satisfactory single metal or alloy cable sheath has been developed that would eliminate the need of a support for aerial cable. Therefore, various types of strand have been used for that purpose.

Perhaps one of the most important factors that govern the life of aerial cable is the placing of messenger strand at the proper tension. The use of a strand tension measuring device such as a dynamometer should be considered a *must* when stringing strand, because all other methods will only give rough approximate results.

Using a dynamometer to check the tension of strand which was gauged by any of the older methods will quickly convince the most skeptical as to the value of using dynamometer. The correct stringing tension for each particular strand may be determined from plant practice data.

By experience it has been proved that greater damage is caused to an aerial cable when the strand is placed at too high tension rather than too low. Too high strand tension will cause ring wear resulting from buckling, etc., while too much sag may cause damage by allowing the cable to swing, thereby breaking the sheath. Too much sag also causes sharp peaks of the cable at the poles where many of the sheath breaks occur.

### Attaching Aerial Cable to Strand

Since the beginning there has been a continual evolution in search of a device that would be entirely satisfactory for attaching cable to strand.

Nearly all of the devices developed proved, after several years of use, to be either mechanically unsatisfactory or too costly.

Then came the lashing or spinning method which by its use for a number of years has proved to be the most

satisfactory method of attaching the cable to strand yet to be developed.

**Lashing the cable**

The modern lashing machine makes close uniform wraps of the lashing wire. This machine is not equipped with a brake; therefore, a constant tension must be applied to the pulling line to prevent the machine from drifting back when stopping to pass the pulling line around obstructions, etc.

This machine will accommodate a 350-ft. coil of .091-in. diameter wire, and will lash about 325 lineal feet of cable.

Type "A" zinc coated wire is for general use on the larger cables when corrosion is not excessive.

Type "B" aluminum wire is not recommended for areas near salt water, railroad crossings, or where exposed to certain chemicals.

Type "C" .065-in. (approximately 1/16-in.) diameter chromium steel lashing wire is recommended for locations where corrosion is severe. However, this is not recommended for railroad crossings.

When obstructions such as trees prevent lashing of the cable direct from the reel to strand, the cable may be pulled through blocks and lashed by hand.

The Type "C" machine, applies a .045 in. (about 3/64 in.) diameter chromium steel wire having good corrosion resisting properties. This machine accommodates a 1,200-ft. coil, and is equipped with an automatic brake which prevents any drifting back of the machine when the pulling tension on the line is removed.

The Type ".065" chromium steel lasting wire may be used in either the Type "B" or Type "D" spinner.

Supporting the cable properly, adjacent to poles, splices, load pots, etc., is equally as important as the lashing in the span.

Zinc bands, lead spacers also clamps for terminating the lashing wire are available and will be found economical, saving considerable labor construction costs.

Non-lead sheath cables may be suported by lashing in approximately the same manner as lead sheath cables.

**Strand for interior Cable Support**

Strand supported cables in large industrial plants, risers in vertical cable shafts of office buildings, etc., are often more economical to install and maintain than by attaching the cable to brick, concrete or other walls.

**Special Cable to Strand Attachments**

When it is desirable to insulate the cable from the strand or to eliminate cable vibration, a spun glass hanger, may be used to advantage. It should, however, be used correctly so that it grips the cable, thereby preventing slippage of the hanger.

**Transporting the Cable**

Reel carriers of the home made variety, if properly constructed, will prove economical, speeding up the moving of the cable from one point to another and often preventing costly damage caused by rolling the reels or by rough handling.

Where considerable cable is to be moved, the modern factory built carrier now available is indispensable because the largest reels may be picked up quickly and the aerial or underground cable pulled in directly from the reel.

**Underground Cable Support**

The discussion of underground conduit is not within the scope of this paper except to say that it is the best cable supporting medium yet devised.

Adjustable cable racks and supports spaced closely enough to prevent cable sag between the supports along the manhole walls will prevent mechanical sheath damage due to vibration caused by heavy traffic.

**Cable Pulling in Methods**

Before attempting to pull cable into conduit, the duct to be used should first be thoroughly cleaned by drawing a mandrel and/or a wire brush through the duct to remove foreign matter that might possibly injure the sheath.

The conventional woven wire grip will be found satisfactory for pulling in small and medium size cables where the duct is of sufficient size to provide good clearance for the cable. A cable pulling eye, by which every wire and the sheath are firmly soldered to an eye bolt eliminates any possibility of sheath stretch or break at or near the pulling end of the cable.

Such pulling eyes also allow the maximum diameter cables to be installed in a particular duct. For example: A 1,212-pair, 24-gauge cable, 2.87 inches in diameter, has been successfully pulled into a duct having a three-inch inside diameter. After the pulling-in operation is completed, the wiping solder used to make the eye may be recovered and reused.

**Shipping and Installing Cable Under Pressure**

Some cable manufacturers factory test the lead sheath by the use of nitrogen gas and will ship the cable under pressure if so requested.

The cable may then be installed aerially or underground under pressure, and after waiting a reasonable length of time the pressure may then be checked with an ordinary tire gauge. If the pressure is about the same, after allowing for temperature changes, it is safe to assume that there has been no damage to the sheath during the installation operation.

**Corrosion Protection**

It is a well known fact that damage to lead sheath cable by electrolytic action occurs where positive current flows from the sheath to earth or other underground structure. Now to have current flowing *from* the sheath to earth, or to other underground structure, we must have current flowing *to* that same sheath at some other point. Therefore, it is reasonable to assume that any current that can be prevented from flowing to the cable will reduce the volume of current leaving the cable in the positive area.

Lead sheath cable with an asphalt and jute protective and insulating cover will reduce current flow to and from the sheath.

Lead sheath cables with a neoprene jacket have been developed for the same purpose and should be effective during the life of the neoprene jacket.

**Splicing Cable**

The splicing techniques followed when splicing paper tape or pulp insulated cables are approximately the same for either type of cable except that when splicing pulp insulated cable, especially in cold weather, splicing oil should be applied sparingly with a brush at the point where the pulp insulation is to be removed, which is a better method than to boil out the splice with paraffin.

Cotton or paper tubes may be used for pulp insulation in the same manner as when splicing the conventional paper tape cable. However, with cotton tubes being flexible it is easier to produce a symmetrical splice, also one of a smaller diameter.

The absorption of moisture by the dry paper insulation from the atmosphere and the splicer's hands make it necessary to apply preventive measures so as to remove this moisture from time to time during splicing operations, especially when working on large cables. Applications of hot paraffin several times during the splicing operation, and when the splice is completed before the lead sleeve is placed, have been general practice on paper tape cable.

A newer and more satisfactory method is to apply dessicant from time to time during the actual splicing operation, removing the dessicant after it has had time to absorb any moisture present, then when the splice is completed, allow a portion to remain and be sealed in by the lead sleeve and wiped joints.

### Solder Work

Many engineers consider that a wiped joint is the most satisfactory method of attaching or sealing the lead sleeve to the sheath, especially the larger sizes of cables and sleeves.

There are numerous devices such as lead wedges, discs, etc., which may be used when making branch splices that will greatly facilitate the making of a gas tight joint. These accessories are available to fit numerous size combinations of cable and lead sleeves, or, where relatively few are required, they may be made by the splicer on the job.

Discs are most useful where four or more cables must be brought out of the same end of the sleeve. In cable vaults it is often convenient and desirable to split up the paper entrance into a number of smaller textile insulated cables. For such jobs discs are ideal.

The quality of a wiped joint cannot be determined by the amount of solder it contains, but rather how well it holds gas or air under pressure.

The recently developed sealing solder is easily applied to a newly wiped joint before its temperature has dropped below the point where the sealing solder will no longer flow.

Sealing solder melts at 95° C. or 203° F. However, it is intended for use while the joint temperature is between 150 and 170° C.

Old wiped joints also may be made gas tight by first thoroughly cleaning the joint, then heating it to a temperature of between 150 and 170° C., and, while the joint is at this temperature, apply and wipe the sealing over the entire old or new joint with a small wiping pad.

### Soldering with Open Flame Torches and Irons

Open flame torches of any description should never be used for solder work in man-holes, buildings or other places where there is likely to be *any* explosive gas present.

There is, however, a large field where the use of gas torches will prove more economical and satisfactory for making sheath closures than by some methods formerly used.

The seam of any split sleeve may be run more easily and quickly by using a gas torch and stearine core solder.

The smaller size sleeves may also be attached to the sheath in the same manner which requires the minimum of labor and material.

Many sheath openings made for clearing trouble can and should be closed immediately upon clearing the fault, especially where the pairs are cleared without entirely removing a section of the sheath.

Lightning and power burns as well as some moisture faults can be cleared by slitting the sheath, clearing the trouble by insulating the wires with tape, or moisture faults by applying dessicant.

After the insulation has been restored the sheath can be bent back into its normal shape and the slit sealed by the use of the torch and stearine core solder.

### Pressure Testing New Solder Work

Pressure testing solder work, such as seams in lead sleeves and wiped joints, by the use of nitrogen gas or dry compressed air is easy, and will eliminate any hazard of having leaks that cannot be otherwise detected.

Nitrogen is an inert dry gas which is not harmful to humans unless confined in a very small space.

When a sleeve, or other solder work on the cable, is to be tested, nitrogen gas is applied through a modified tire valve until the pressure inside the sleeve or cable reaches about four or five pounds. Then an application of a solution of soap, water and glycerine is brushed onto all the solder work to detect leaks by bubbles.

Compressed air may also be used in the same manner as nitrogen, except that the air must be passed through a dessicant before admitting it into the cable to prevent the moisture which is present in the air from reaching the dry paper insulation of the cable.

The dessicant is placed in containers through which the air passes on its way into the cable. These containers are arranged to allow visible inspection at all times to determine, by the change in color of the dessicant, when it must be replaced.

### Preventive Maintenance of Cable

Preventive maintenance, which means the clearing of trouble before it happens, should be featured in every plant, not only as applied to cable but also all other parts of the system.

To be able to clear faults before they happen, we must have means of detecting such faults in the making.

There is on the market a newly developed electronic device with which very high resistance shorts and grounds also solid trouble, may be detected quickly by running a test shoe along the main frame terminals at the rate of about 10 lines per second. The instrument will give an audible signal when a line having a fault is touched. The testing may be done in dry weather to locate the lines that are likely to fail in wet weather, at a time when the maintenance forces are busy with out of service reports. In a matter of hours a large exchange may be tested, and faults noted by this method.

A similar device may be used to advantage to check vacant pairs in the cable plant by running a probe over the vacant pairs in good or bad weather. The audible signal in this set also gives an indication when a faulty pair is contacted. A group of vacant pairs in a particular count or cable which cause the alarm in this set to operate, is an indication that a moisture fault is developing in that cable, and steps should be taken to clear the fault before service interruptions occur. A relatively short time is required, by either of the above methods, for testing the working lines or vacant pairs in any exchange.

Practicing preventive maintenance will contribute greatly to making good service a feature in any system.

### Electrolysis Preventive Maintenance

Periodic routine tests of the underground plant should be made and in areas where the sheath is positive to earth, corrective measures should be applied to eliminate or minimize the danger of sheath failures.

Competent engineers should devise ways to eliminate the offending current which might require one method at one point and an entirely different treatment at another, because there is no cure-all method. The correct interpretation or analysis of the readings produced by an electrolysis test or survey is very important in solving corrosion problems.

Voltage readings between sheath and earth, or other structures, do not always indicate the magnitude of the current flowing between such cable and earth, or other structures, at the danger points. Therefore, any cable sheath that is positive to earth, water, gas or any other underground structure should be considered to be in danger of damage by electrolysis regardless of what the voltage reading values happen to be. However, by neglecting electrolysis warnings we may be sure to have subsequent expensive underground cable failures.

### Preventive Maintenance Pressure Testing

Frequently when moving or relocating cables in manholes, vaults, etc., there is the danger of sheath breaks caused by rough handling or excessive bending of the cable. These sheath breaks are not always detected by visual inspection and are often the direct cause of moisture failures.

Such failures can be avoided by pressure testing the sleeves, solder work and sheath by placing a valve in the sleeve or sheath, then admitting nitrogen or dry air until a pressure of about five pounds is reached, and then applying a soap-water and glycerine mixture to all the suspected points or better

still soap the entire cable in the area where the relocating job was performed.

If there is a sleeve in the cable, it is usually well to place the valve near either end of the sleeve near the wiped joint where, in most cases, there will be a void inside the sleeve.

The time required to admit enough nitrogen or dry air depends on whether the cable is a loose or tight core cable and how thoroughly the cable adjacent to the splice is saturated with paraffin.

If there is doubt as to whether the pressure extends beyond the sleeve portion, the valve should be placed adjacent to the suspected spot in the sheath.

Pressure testing is also useful in determining the exact spot where a bridge location or tone method indicates a moisture fault to be. But no evidence of a sheath rupture may be found by visual inspection. Admitting gas or air in the area as indicated by the instruments and soaping the cable in either direction from that point will avoid unnecessary sheath openings and subsequent expense in making permanent repairs.

The cable maintenance ladder truck is ideal for locating aerial cable sheath breaks. It is also useful for any other cable work which may be reached by a ladder. Such ladder equipped trucks should be a feature in every cable plant.

#### Miscellaneous Preventive Cable Maintenance

There are many simple, easily overlooked features of preventive cable maintenance such as a ring missing, slack in the cable, bowing, etc.

A single missing cable ring, if not replaced, will eventually be the direct cause of a sheath break. Slack rings being out of place, or any other reason, will also cause trouble. Bowing is usually caused by improper strand tension —it should never be neglected.

Measuring the tension with a dynamometer will indicate whether the tension is too great, in which case slack should be cut into the strand and the tension thereby reduced to the proper value. If the strand tension is already correct, any slack should be removed from the cable. This latter method should be avoided when the cable contains a complement of quadded pairs because it is likely to unbalance the quads.

Grade clamps correctly placed and maintained will prevent creeping of the cable at corners, and on a grade.

#### Preventive Maintenance of Cable Protection

The most efficient protective device known is worthless if improperly installed and maintained.

Simply stated the purpose of every lightning protector is to pass the lightning charge to earth without damaging the cable, and the power protector must open the circuit to prevent high voltage current from reaching the cable pair. Combining these two features into a single or even a combination of devices is no easy task.

One method used by many companies, is to connect the ground post of the cable terminal to the sheath and strand, thereby by-passing the current by way of the discharge blocks to the grounded sheath. The cable terminal is then connected to the line with a short length of small gauge bridle wire (usually 22-gauge), eliminating the conventional fuses, and depending on the small gauge bridle wire to open when a power line comes in contact with the telephone circuit.

The discharge blocks for this method must automatically ground solid when contact is made between the telephone and power line which causes excessive current to flow through the 22-gauge wire to ground, causing them to burn off and thereby opening the circuit and disconnecting it from the cable pair.

This method eliminates a great deal of unnecessary fuse trouble at the cable terminal while providing protection against excessive current entering the cable to cause shorts, crosses and grounds.

Whenever a made ground is used for grounding any protective device or equipment, the ground resistance should be measured, which is the only way to be sure that the ground is effective.

Regular inspection of protective grounds, discharge blocks and associated equipment should be regularly maintained and all defective parts replaced before they have a chance to fail.

#### Buffer Cable Protection

With the ever increasing expansion by power lines in the rural areas, many companies not previously affected must now give serious attention to the problem of adequately protecting their personnel, as well as telephone plant, from accidental contact with high tension lines.

In some areas, even the heavenly elements have altered to such an extent, to call for a more serious consideration of atmospheric electricity. The necessity for a careful study is especially true in companies which have, in the past, had very little rural plant, and which now are faced with extensive rural construction. Fortunately for those companies entering into rural construction for the first time, protective equipment is available that will meet most power and atmospheric problems. In locales where lightning is not severe and the possibility of power line contacts are limited, "back up protection," as it is called, is used as a means of drainage of open wire lines before the open wire enters the cable.

This protection usually consists of an 83-A Western Electric protector mounted on the fifth pole from the cable terminal. Bridle wire connections are made with an approved test connector, compression sleeve or other approved material. For grounding, a No. 6 copper ground wire is run from the 83-A protector to multiple ground rods. These rods are placed five feet apart and in line with the lead. The ground wire and rods should be buried approximately 12 ins. below ground surface. A permanent low resistance connection should be obtained where the pigtail from the rod joins the main ground wire, either by compression sleeve or soldering.

Back up protection is used in addition to the normal protection provided at the cable terminal.

For open wire lines placed on poles with power wires a more serious view must be taken because of the increased possibilities of accidental contact as well as induced potentials.

As a first protective measure, a No. 99-A protector is installed on the dead-end arm at the terminal pole for each pair of wires terminated. The ground wire from each of these protectors is connected to the ground wire of the power company. In the event the power neutral is not grounded at the terminal pole then a number No. 0 stranded wire is placed up the pole to the power company's neutral wire. The ground wire of the No. 99-A protectors is then connected to the main ground.

A representative of the power company must make the connection between the main ground wire and the power company's neutral wire.

The No. 99-A protector consists of three round carbon blocks, mounted horizontally on a porcelain base, with the ground block in the center. The unit itself is mounted on an iron angle bracket, and with a crimped-on metal cover, is entirely waterproof. The 99-A arrester is rated at a 3,000 volt breakdown.

The 99-A protector is used in heavy lightning areas as supplemental protection for rural substation equipment. This protection is spaced in such a way that there will be a 99-A protector at a distance of one-half mile on each side

*(Please turn to page 30)*

# MAINTENANCE TESTING EQUIPMENT

By JOHN A. BRACKEN

**PART XXXVI. The preceding article in this series appeared in the Oct. 7 issue, p. 19.**

SOME very common faults which develop in such central office equipment as power apparatus, switches, relays, keys, cords, multiple wiring, etc., are: (1) Opens, (2) grounds, (3) crosses and (4) short circuits.

Relative to short circuits, there is a rule that "an electric current follows the path of least resistance." This, however, is not entirely true. Of course, the short circuit path is one of very low resistance, however, the short circuit is a parallel connection and the current divides in inverse proportion to the resistance. That is, if the short circuit path has an 0.5-ohm resistance and the normal path four ohms, as shown in *Fig. 1*, the current

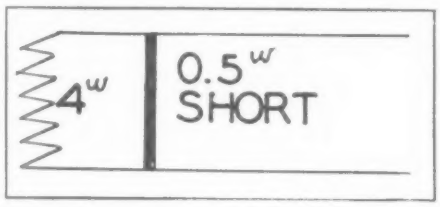



Fig. 1

will divide as follows: The low resistance is one-eighth of the high resistance, therefore, eight times as much current will flow through the low resistance as through the high one. In other words, one-eighth of the total current will pass through the high resistance, and seven-eighths through the low.

In this case, the resistance of the two parallel paths is such that the current divides in them at the ratio of 7:1. If the total current is 0.375 amperes, what is the current in each path? The current divides into $7+1=8$ parts, of which seven parts flow through the low resistance and one part through the high, consequently the current in the low resistance path equals $7\div8=.875\times.375=.328$ ampere; and in the other $1\div8=.125\times.375=.047$ ampere. Hence, $.328+.047=.375$ ampere or total current.

Before attempting to test for any of the aforesaid faults, an analysis of the trouble should be made. For example, if in a manually operated exchange a report of "permanent line signal" is received, we (1) make an analysis of the symptoms of the fault (the outstanding symptom is failure of the cut-off relay to function properly); (2) search for the probable cause of the trouble (which may be due to one of the following: (a) Winding of the cut-off relay open; (b) short circuit; (c) the spring contacts of the cut-off relay do not break when the armature pulls up; (d) adjustment of the cut-off relay may be such that it fails to operate; (e) sleeve connection to line jack is open or grounded at the jack terminal punching, etc.).

After completing the analysis, refer to the central office line circuit drawing, and study that part of the circuit involved. For example, consider the simple schematic drawing of a cut-off relay line circuit shown in *Fig. 3*, where a line relay is connected in series with the battery through the cut-off relay bottom contacts to the ring side of the station line circuit, and the cut-off relay is connected in series between the line jack sleeve and ground. The line lamp circuit is wired through the contacts on the line relay, and the line relay in turn is controlled by the action of the line cut-off relay.

It will be noted in *Fig. 3*, that two batteries and several ground connections are shown; actually there is but one battery and associated ground connection and they are common to the entire exchange. On circuit schematic drawings it is customary to show the minus pole of the battery connected to each point in the circuit which is common to that pole of the battery and the ground (earth) symbol to indicate connections to the battery's grounded terminal. If the exchange battery were completely insulated from the earth, and some part of the wiring connected to the battery came in contact with a source of foreign EMF, the potential of the telephone system connected to the battery would be raised to that of the foreign EMF, which in some instances could become very dangerous.

To prevent this, and thereby minimizing the trouble that may be encountered, it is standard practice to

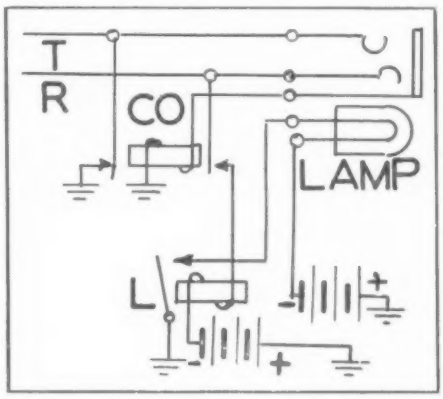



Fig. 2

provide a low resistance path to the earth and thus dissipate the effect of foreign EMF by permanently connecting one pole (usually the plus) of the exchange battery to ground.

In order to locate certain of the faults previously listed, all that is required is a portable milliammeter and other associated equipment such as a dry cell, two binding posts, pair of cords with test picks attached to one end of each cord, and a fixed resistor of such value as to limit the current through the milliammeter to an amount not to exceed the meter full scale deflection. For example, assume that the

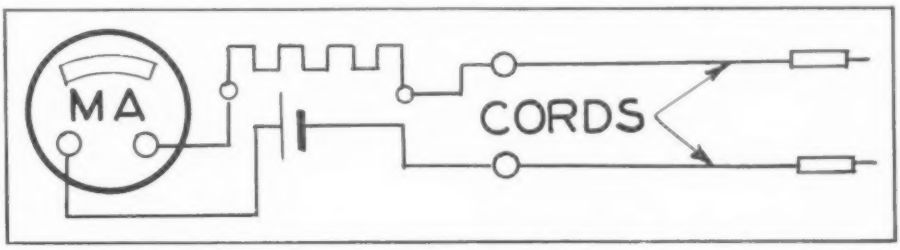



Fig. 3

meter has a full scale deflection of 100 MA. The value of the required fixed resistor may be determined as follows: Say the meter resistance (r) is four ohms, test cords (r1) 0.5 ohms each and the dry cell EMF 1.5 volts, then applying Ohm's Law, $R=E\div I-(r+r1)$, or $1.5\div.100=15-(4+1)=10$ ohms, the value of the required fixed resistor. This equipment can be mounted in a small carrying case and wired as shown in *Fig. 2.*

Again consider the case of "permanent line signal." To localize the trouble (after completing a study of the circuit drawing), remove the cover from the cut-off relay and manually operate the relay armature. An inspection of the cut-off relay contacts will determine if they break properly. If they do, then block the armature in its operated position and ascertain whether or not the line lamp is out. If it is, it is an indication that either the cut-off relay is failing to operate or there is line jack sleeve trouble.

To test for an open sleeve circuit: (1) Connect the tip, ring and sleeve of a spare switchboard plug together and then insert the plug into the line jack, as shown in *Fig. 4;* (2) touch one test pick of a cord connected to the test set to the (CO) relay winding, and the other cord test pick to the (CO) relay contact connected to the ring side of the line, as shown in *Fig. 4;* (3) if a reading of the meter is obtained, the sleeve circuit is OK.

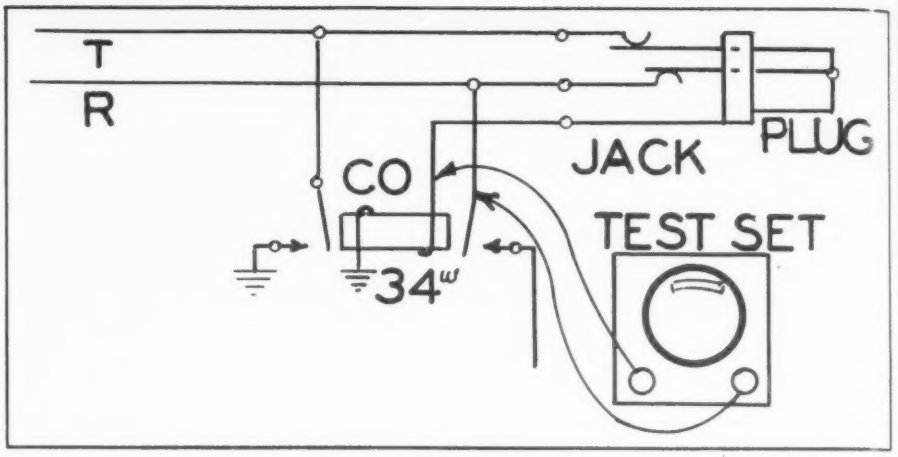



Fig. 4

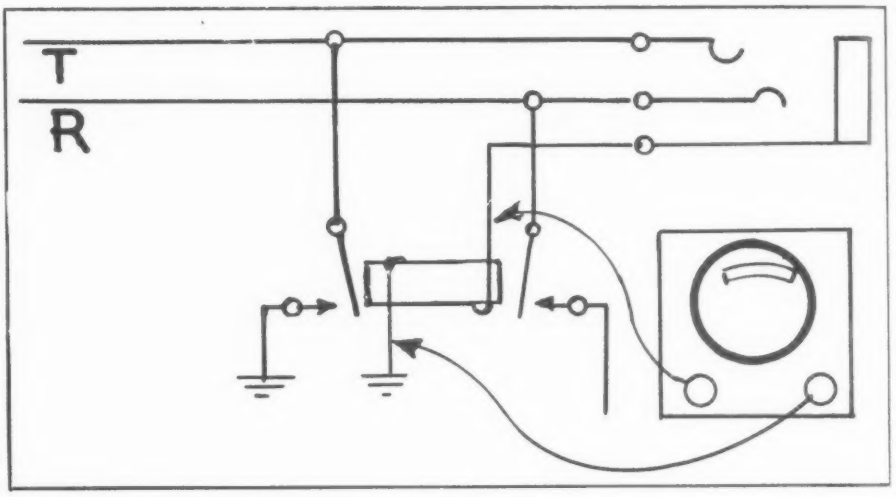



Fig. 5

To test for an open or short circuited (CO) relay: (1) Touch the test picks of the test cords to the relay winding terminals, as shown in *Fig. 5;* (2) if the relay winding is open, no meter reading will be obtained; (3) if the relay winding is short circuited, a full scale deflection of the meter needle should be obtained; (4) if the relay winding is not short circuited, then according to Ohm's Law, the meter reading should be about 30 MA, that is, $I=E\div R$, or $1.5\div(4+1+10+34)=0.030$ ampere.

*(To Be Continued)*

## WHERE DO YOU STAND?

**Basically there are but two political philosophies. One sets the citizen above the state—that is what we have had in this country under our representative form of government. The other sets the state above the citizen and results in the oppression that has bedeviled the human race throughout the ages. Currently, Socialism and Communism represent the ultimate in the latter philosophy. That is why present-day planners who advocate greater and greater government domination over the individual avoid these names like the plague. They promote government ownership of industry, they endorse compulsory medical taxes, they tour the country at the taxpayers' expense in support of federal power "authorities" and constantly harp on the theme that the capabilities of private industry are inadequate. Their program from start to finish is Socialism, and yet if it is so defined they cry "libelous."**

**Regardless of the sensitivities of the disguised socialist, it is of the greatest importance to define his aims. If this country is to abandon the system of government upon which it was founded, let's do it deliberately, not by subterfuge. In an outstanding editorial the *American Druggist* declares: "Up to now no important politician has openly asked us to choose between democracy and Socialism or some other kind of statism, but we are being urged to support candidates for Congress who favor political programs that definitely express much more faith in government control than in the individual character and ability of the average citizen. . . .**

**"If we have come to the conclusion that the individual problems of most people are too much for them, and that the only hope is in a benevolent government, then let us set up a super government . . . but let us do it with our eyes open. On the other hand, if we still believe that the only real security for any citizen is his individual freedom of opportunity, it is our conviction that the time has come to stand up and declare ourselves. . . ."—*Industrial News Review.***

# THE OPERATOR'S Corner

BY
MAYME WORKMAN
TRAFFIC
EDITOR

HAVE you ever given any thought to who pays for social security? You know, of course, that 1½ per cent of your wages are withheld by the company for social security, but do you know how this law actually works? Since your earnings are helping to finance this program, perhaps you will be interested in learning more about it.

In the October issue of the *Illinois Bell Telephone News* under the caption, "The Question Box," an actual case was cited which gives a thorough explanation of how the social security law functions.

To the question, "Who pays for social security?" the reply was, "You and your company pay for social security." The article stated: "At one time or another you may have heard someone say that the 'government' pays for social security. But, the government simply passed the law which requires you and your company to pay taxes to finance the program. The revised social security law, recently passed, is the same in this respect as the original law, which has been in effect since 1937.

"Let's take an actual case. Jim Jones retired in 1944, after having, *himself*, paid only $190 into the social security fund. When Jim Jones retired, he began to collect a social security pension from the 'government.' He got $40 a month. In the 6½ years since his retirement he has received social security checks totaling $3,160.

"Where did Jim Jones' $3,160 really come from?

"(1) $1,580, half of it, was paid for by Jim and other employes, from whose paychecks social security taxes are deducted regularly.

"Jim Jones, himself, paid only $190 of this, but because social security is an insurance program, some individuals gain from it and some lose. Jim is one of those individuals who gain from social security, because he didn't pay for the full half share of what he has collected. But, for every individual who gains, some other person will collect less than he put in or his company put in for him.

"(2) $1,580, half of Jim Jones' social security income, was paid for by his company.

"It's true that during the time Jim Jones was working his company paid only $190 for him. But, ever since Jim retired, his company has continued to pay sizeable amounts into the social security fund for other employes—who never will collect all that has been paid in for them. The fund passes some of this money along to Jim Jones to pay for his benefits now.

"Jim gets more than the company paid in for him, and another employe gets less. The point is that, on the average, the company pays in taxes its full half share of all social security pensions collected by its retired employes on account of their service. In this respect, the company is different from an individual. An individual retiring in the early years of social security will never have to pay in full for his half of the social security pension, but he still will get the benefit of it. The company, on the other hand, inevitably pays in full for its half share of the cost of all benefits.

"It wasn't Confucius who said, 'There ain't no such thing as a free lunch.' But it rings true. For every person who gets something for nothing, another person will get nothing for something. Social security has to be paid for — and, although the government sends out the checks, you and your company pay for it.

"You and other employes pay for half of it, although as an individual you may collect more or less than you pay in. Your company pays for half of it and, on the average, half of every social security check you get, or will get, is paid for by your company."

And so we find, checks received from the federal government represent money that has been earned by the individual, the company, or both. The government derives its funds from taxation levied upon wages of individuals and earnings of companies. The saying, "There ain't no such thing as a free lunch" is verily true. When, and if, you receive social security payments from the federal government, you will be receiving money paid to the government by you, your company, and, in some instances, by your co-workers.

### Traffic Questions

(1) What phrase should be used if it is necessary to determine if the customer is using a dial telephone in order to give instructions?

(2) What action should be taken if the Information operator discovers an error or omission in the information records?

(3) Is an Information operator permitted to give her name to a customer if he asks for it after he has experienced difficulty on a call or service has been rendered which caused him to comment favorably?

(4) Will you please cite some of the conditions which may be referred to the supervisor when you are working on information in addition to the various conditions in the *Operating Practice* which require reference to the supervisor?

(5) If an Information operator wishes a customer to talk to the supervisor, what phrase is generally used?

*Answers are presented on page 31.*

V V

### Co-op and Mutual Formed in Recent Midwest Incorporations

At West Liberty, Ky., recently the Mountain Rural Telephone Cooperative Corp. was organized as a nonstock, nonprofit corporation to serve surrounding counties.

In Kansas at Ulysses the Pioneer Telephone Assoc., Inc., was formed on a membership basis, without authority to issue capital stock. The company completed incorporation procedure in the secretary of state's office very recently.

V V

**"Now that the election is over and we get down to everyday business again it becomes apparent that the next big battle of the country on the domestic front will be against an increase in inflation which may in the long run lead to socialism and loss of our system of private enterprise!"—Delano (Minn.) *Eagle*.**

# *When you buy* STROWGER AUTOMA

**This COMPLETE range of services protects your investmen**

## FIELD ENGINEERING

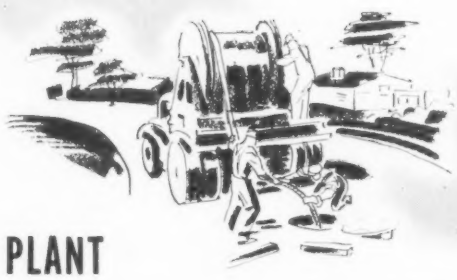
First step in solving many operating problems is a detailed study of exchange traffic. Automatic Electric field engineers give expert advice on such studies, and can supply automatic recording equipment to assure accurate results with a minimum of labor. Dependable, accurate traffic and other operating data enable Automatic Electric engineers to provide exactly the correct amount and types of switching equipment.

It is natural for hundreds of telephone companies to turn to Automatic Electric whenever there's an equipment problem to be solved.

And there's a good reason. For what makes Automatic's equipment service so distinctive and so valuable to operating companies is that it includes so much more than the bare supply of switchboard equip

## "TAILORED" EQUIPMENT

Every Strowger Automatic switchboard is individually engineered, and is equipped to meet the operating and service requirements of a specific exchange. Strowger Automatic exchanges can be "tailored" with such accuracy because of the small-unit construction of Strowger Automatic equipment, and the wide variety of equipment units available to meet every need.



## SUGGESTIONS ON OUTSIDE PLANT

When your problem involves re-arrangement or extension of your outside plant, Automatic's experts in that field will be glad to make their recommendation. They're alert to the latest construction methods for town and rural lines —or can advise you on the most efficient means of handling toll traffic, including the most modern techniques in carrier and radio.

## STAFF TRAINING

For more than forty years, Automatic Electric has helped in the training of telephone company technical personnel. Textbooks are supplied for "on the job" study; or selected employees may be sent to the Training School at our factory, where complete facilities and expert teachers are available without cost to the telephone company.

## INSTALLATION

Our experienced field installers are prepared to handle the complete installation of all central office equipment, including automatic switchboards, power equipment and manual positions. Every step, from floor plan through erection, cabling, wiring and testing, receives the most expert care to insure efficient and successful operation.

## OPERATING ENGINEERING

Throughout the long life of your Strowger Automatic equipment, specially trained operating engineers will be at your call, to consult with you on any phase of your exchange operation. In addition, at the appropriate time prior to issuance of the new directory, they are available to make recommendations on "number assignments" so that your new equipment will be utilized to greatest efficiency.

With every purchase goes a wide
of other services which are vital to
plete and successful installation—
s which are made possible through
atic's long experience in meeting
type of field requirement.

hen you buy central office equipment,
s that your investment is protected by
ervices as those listed here. All of
are regularly available to purchasers
owger Automatic equipment.

## SUBSCRIBER EDUCATION

Many telephone companies take advantage of community interest in the installation of automatic equipment to educate subscribers in the functioning of the equipment and the operation of the automatic telephone. For this purpose, Automatic Electric is prepared to supply portable demonstration units which may be placed in the telephone company's offices or in other public places for demonstration to, and operation by, the telephone users.

## RATES AND FINANCING

Modernization of telephone facilities often involves arrangements for financing, by borrowing or by sale of equities, and for rate adjustments where indicated. Automatic Electric is prepared to advise in such cases in the setting up of proper accounting records and in preparation of the data required for financing and for presentation of rate cases before regulatory authorities.

**UTOMATIC ELECTRIC**

ors and Developers of the Strowger Step-by-Step "Director" for Register-Translator Operation . . . Machine Switching Automatic Dial Systems
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**1033 West Van Buren Street, Chicago 7, U. S. A.**

# Courts and Commissions

## Michigan Companies Get Rate Increases and Service Changes

Recent action by the Michigan Public Service Commission included various changes in service and rates, as follows:

An order was issued granting discontinuance of the inter-exchange of free toll service by the Riga exchange of the Michigan Associated Telephone Co., Muskegon, to the Whiteford Farmers Telephone Co., Whiteford Center, and the Deerfield Farmers Telephone Co. and vice versa; and establishing the Riga locality rate area as part of the Blissfield exchange service area (Michigan Associated Telephone Co.).

The application of the Morenci Home Telephone Co. for 10-party common battery service at 75 cents for business and $3.00 for residence was granted.

Also, increased rates were authorized for the following:

Consolidated Telephone Co., Springport

Boyne Valley Telephone Co., Boyne Falls

Levering Telephone Co.

Port Hope Telephone Co., Port Austin and Port Hope exchanges

Chesaning Home Telephone Co., Brant and Chesaning exchanges

The Calhoun County Telephone Co., Homer, was granted an increase in urban multi-party common battery service rates and authority to institute rural common battery service.

Another order issued granted the sale of the Cadillac and Pine River Telephone Co., Hoxeyville, to Roy and Virginia Drill.

V V

## Two Alabama Companies May Earn 8% Return on Net Investment

Recent rate increases granted by the Alabama Public Service Commission to the Elmore Coosa Telephone Co., Eclectic, "will possibly provide for the 8 per cent return sought by petitioner after the expected prospective business has been connected. . . ."

For the Elmore Coosa Co., with current earnings of $1,148.66 or a 3.54 per cent return on depreciated plant investment stated to be $32,473, it was thought by the commission that rate increases providing approximately $1,000 additional from existing customers were warranted. The company, having 225 stations at present, would, after addition of new business, possibly gain the 8 per cent return sought.

In another case, that of the Moundville Telephone Co., the commission ruled additional revenue of $550 per year was in order, which would allow approximately an 8 per cent return on its investment. This was necessary to enable the owner to maintain and render adequate service for its business subscribers; and, incidentally, was agreed to by 26 of the total number of 34 business customers.

Another rate raise granted by the commission, this one to the Peoples Telephone Co., Collinsville, makes it possible to realize a 6.8 per cent return on net investment. The company had proposed replacing the present magneto switchboard at Centre with a dial switchboard and, pending its conversion, proposes to install a 600-line three position common battery board with full selective ringing, which is available to the company on a monthly rental basis. To justify the investment of $40,000 for dial equipment, the company requested and received increased rates which would possibly, upon addition of 150 expected new subscribers, return about 6.8 per cent on the net invested capital. The rented common battery switchboard, it was expected, could adequately serve the 410 Centre stations plus the looked-for additions.

V V

## Florala, Ala., Company Obtains Approval of Stock Sale

The Florala Telephone Co., Inc., on Dec. 5 was granted approval of the sale of 1,200 shares of cumulative, nonconvertible, 4 per cent preferred stock of $25 par, in the total amount of $30,000, by the Alabama Public Service Commission.

Proceeds from the sale of stock are to be used to refinance an existing debt of $10,000 and, together with a pending loan of $309,000 from the Rural Electrification Administration, to modernize, improve and expand the company's entire plant.

Awaiting completion of the loan to the Florala company by REA, the entire proceeds of the stock sale will be held in escrow. In case the loan is not consummated by the Florala company or approved by the commission, the company is to refund the par value of the stock to the purchasers upon surrender of the stock.

V V

## Bell Meets Opposition to Oklahoma Rate Increase

The Southwestern Bell Telephone Co. met determined opposition Dec. 22 from John Ogden, attorney, who brought in seven city attorneys to protest that company's application for increased rates. They were the city attorneys of Maude, Hennessey, Elk City, Mangum, Hobart, Weatherford and Clinton.

The commission then postponed further hearings until Jan. 17, 18 and 19.

This action followed testimony of Paul R. Reed, commissioner of utilities for the commission, that the company is entitled to some increase, sufficient to permit a 5.25 per cent return on its net investment in Oklahoma. The company had previously introduced exhibits and testimony to show that it is now earning only 2.21 per cent on its investment in the state, an insufficient amount to enable it to go ahead with its $85,000,000 improvement program in Oklahoma.

V V

## Increase, Extension of Rates Ordered by Neb. Commission

Authority has been given the Hamilton County Farmers Telephone Association by the Nebraska Railway Commission to increase the flat rate service charge between its Hordville exchange and the Northwestern Bell Telephone Co. exchange at Central City. In lieu of toll charges for individual calls the company has been offering service to business customers for 25 cents a month and for residence subscribers

10 cents a month. The new rates will be 50 cents and 20 cents respectively. Sixty Hordville subscribers signed a petition approving the new surcharge.

Evidence submitted by the company showed that the revenues at the old rates have never reached the $10 a month rental of the line paid the Bell company. At present this loss is $2.10 a month, with nothing charged for operators' services.

For the third time the commission has postponed, this time for sixty days, a hearing on the citation issued to Craig M. Weeks, owner of the Hershey Telephone Co. to show cause why the schedule of increased rates granted him some months ago should not be cancelled because of failure to furnish satisfactory service (TELEPHONY, Nov. 4, p. 37). Mr. Weeks and his mother own the properties, and have expressed a desire to sell at a subscribers' meeting. A committee was named to consider the purchase locally of the plant.

An order extending for six months the grounded rates authorized by the commission for the Paxton telephone exchange has been entered. A year ago the commission granted the company authority to put in effect for 1950 a set of grounded rates along with a schedule of metallic rates, the latter to be effective when the lines had all been converted. The commission ordered the temporary grounded rates extended to June 30, 1951. The company has approximately 300 subscribers, 125 rural, and before the rate increase a year ago had been operating at a deficit.

V V

## SW Bell Ordered to Refund $400,000 in Missouri

The Southwestern Bell Telephone Co. Dec. 21 was ordered by Judge Sam C. Blair of the Cole County Circuit Court to refund about $400,000 to Missouri customers. (TELEPHONY, Aug. 19, p. 34.)

The order directs the company to refund increased charges collected from Feb. 1 to Mar. 9, 1949, under the first round $3,400,000 annual rate raise granted by the Missouri Public Service Commission on Jan. 18, 1949.

The commission's original order was declared invalid by Judge Blair on technical grounds, and the commission issued a corrected order granting the same rate increases effective Mar. 10, 1949.

The first round rate increases subsequently were upheld under the revised order, and the question of whether Southwestern Bell or its customers were entitled to the increased charges collected under the original order was remanded to Judge Blair for finding after a hearing.

Attorneys for the company indicated Judge Blair's refund order would be appealed. They contend that since the rates authorized in the revised commission order were held to be fair, the company was entitled to the charges made under the original commission order.

The commission granted the company a second round Missouri rate increase of $3,500,000 a year effective last July 1.

V V

## Tennessee Company Granted Additional 11 Per Cent Increase

An additional rate increase of 11 per cent was granted the Southern Continental Telephone Co. in a decision handed down Dec. 12 by the Tennessee Railroad & Public Utilities Commission. The new increase became effective with the December billing.

This 11 per cent increase is in addition to a previously granted 15 per cent increase (TELEPHONY, Oct. 14, p. 27), and makes a total of a 26 per cent rate raise granted the company since last spring.

In granting the further increase, the commission found that "the applicant company is continuing to make some progress in its efforts to provide improved and more satisfactory service to its subscribers." Further hearing and consideration will be given the matter Jan. 26, 1951, at which time the company will be required to furnish a further progress report and the commission will consider the applicant's petition for a further increase.

V V

## South Dakota Rate Increase

The Farmers-Stockman Telephone Co., Gannvalley, was granted on Dec. 22 approval of the proposed schedule of increased rates submitted. In authorizing the increase, the South Dakota Public Utilities Commission specified that the new rates be effective Jan. 21, 1951, thirty days after date of the order.

V V

## Rate Application Approved

A rate increase application by the Northome Telephone Co. was approved by the Minnesota Railroad & Warehouse Commission on Dec. 18.

V V

## Gets $8,000 Rate Increase

The North Carolina Utilities Commission on Dec. 22 authorized the Western Carolina Telephone Co., Franklin, to increase its rates to bring in an estimated $8,000 a year in additional revenue.

V V

## Two Alabama Companies Sold; One Granted Rate Increase

The Alabama Public Service Commission on Dec. 7 approved the sale of the Town Phone System, Pineapple, by G. S. Melton to Howard G. Wilson.

Another sale approved by the commission was that of the Springville Telephone Co., by Ruben S. Fields to J. M. Bain on Dec. 11.

Subscribers of Lincoln Telephone Exchange requested the commission to approve rate increases recently. The request was granted by the commission, which raised the main station rate 35 cents. Prior to the commission action, the mayor of the town had agreed to sign the request, provided that 65 per cent of the subscribers approved. Actually 72 per cent signed the statement which stipulated that other rates and charges would not be changed under the proposed rate schedule.

V V

## $2,189,106 Annual Rate Slash Ordered For Ohio Bell

The Ohio Public Utilities Commission Dec. 27 ordered the Ohio Bell Telephone Co. to reduce its rates for 1,384,000 subscribers by $2,189,106 annually. The commission also ordered the company to pay rebates amounting to $4,000,000 on money it has collected in the last 21 months.

The commission's order carried out last October's decision of the Ohio Supreme Court. The court ruled that the property evaluation on which the company based its rates was too high.

The court ruled after seven Ohio cities protested increased Ohio Bell rates approved by the commission Mar. 28, 1949. The cities were Dayton, Akron, Toledo, Cleveland, Columbus, Youngstown and Canton.

Commission members split on the order, with Chairman Harold L. Mason and Ray O. Martin signing it and Harry M. Miller dissenting.

Mr. Miller said the court considered erroneous data and used figures not supported by the evidence, before issuing its mandate.

Observers said that, with one commission member not signing the order, the way would be clear for the case to be taken again to the Ohio Supreme Court.

The rebate order by the commission will be about $3.00 for each "average subscriber" for the 21-month period. But the commission said the new schedules which the company must file with-

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in 15 days will determine individual amounts. The rebates will vary according to the subscriber's type of telephone service.

The supreme court decision said the company's base rate evaluation was too high by about $37,500,000. The commission had approved a rate base evaluation of $291,416,835, but the court held it should be $253,861,027.

Both the commission and the court agreed the company should receive a return of 5.67 per cent. Under the rates the company must file within 15 days, the company's return will be $14,393,920. It was $16,526,326 under the rates approved in March, 1949.

The company's income before it was granted a rate increase was $11,208,125 annually, or a return of 3.84 per cent.

The commission said the new rates will mean an annual decrease of about $1,350,000 in net revenue to the company. The difference between that figure and the $2,189,106 the company collected during a 12-month period (and must refund) represents federal telephone call taxes and other expenses.

In their appeal to the Supreme Court from the commission's rates, the cities contended that Ohio Bell had established "neither the necessity nor the right to increase telephone rates in the state of Ohio."

They also contended that the commission when it set the March, 1949, rates, erred in finding generally that the charges of Ohio Bell for its services at prior rates were too low and in granting the higher rates.

The cities contended the commission failed to consider "many of the important elements in the rate hearing case."

V V

## Summary of Commission Rulings and Hearings

### California Public Utilities Commission

Dec. 26: Hearing regarding removal of business service from M. Barry on charge of illegal use thereof, entered by Pacific Telephone & Telegraph Co. Order granting temporary restoration of service issued.

Dec. 26: Hearing on first supplemental application by Citizens Utilities Co. of California, Redding, for authority to increase rates at Rio Vista, Elk Grove and Ferndale.

Dec. 26: Hearing on application of Interstate Telegraph Co., Bishop, for authority to operate at Trona.

Dec. 26: Order issued authorizing that temporary service to L. Stavis, *et al*, H. Drobman, *et al*, H. Squires, *et al* and A. Barney by Pacific Telephone & Telegraph Co. be made permanent.

Dec. 26: First supplemental order issued amending decision authorizing establishment of Muroc exchange by Pacific Telephone & Telegraph Co.

Dec. 26: Order issued dismissing

complaint regarding disconnection by Pacific Telephone & Telegraph Co. of F. Karnes', *et al* facilities.

**Illinois Commerce Commission**

Jan. 2: Hearing on application of Porterville Telephone Co., Annapolis, for authority to increase rates at Eaton and Annapolis.

Jan. 3: Hearing on application of Crescent Telephone Co., Erie, for authority to increase toll rates at Hillsdale and Erie.

Jan. 4: Hearing on the complaint of city of Oblong, *et al*, of alleged inadequate service by the Illinois Consolidated Telephone Co., Mattoon.

Jan. 4: Hearing on application of The 4C Telephone Co., Rankin, for authority to increase rates at Cissna Park, East Lynn, and Rankin.

**Kansas Corporation Commission**

Jan. 2: Hearing on application of The Yorktown Mutual Telephone Co., Hunter, for authority to change rates at Denmark and Hunter.

Jan. 12: Hearing on application of The McKrae Telephone Co., Inc., Fredonia, for authority to abandon the Altamont, Burlington, and Fredonia exchanges.

Jan. 12: Hearing on application of the American Telephone Co., Kansas City, for authority to operate the exchanges located at Altamont, Burlington, and Fredonia.

Jan. 22: Hearing on application of Waco Telephone Co. for authority to operate in the eastern part of Cherokee County and the southeast part of Crawford.

Jan. 23: Hearing on application of The Alexander Telephone Co. for authority to transfer right to operate to B. Ummel, Jr.

Jan. 23: Hearing on application of Farmers Mutual Telephone Co., Gaylord, for authority to change rates at Upland.

Feb. 5: Hearing on the application of Kansas State Telephone Co., Baxter Springs, for authority to change rates at Scammon, Galena and Baxter Springs.

Feb. 6: Hearing on application of Farmers Mutual Telephone Co., Gaylord, for authority to change rates; and issue $2,000,000 worth of capital stock.

**Minnesota Railroad & Warehouse Commission**

Jan 3: Hearing on application of Gardonville Cooperative Telephone Assoc., Brandon, for authority to change rates.

Jan. 3: Hearing on application of Clarkfield Telephone Co. for authority to increase rates.

Jan. 4: Hearing on application of Hills Telephone Exchange for authority to change rates.

Jan. 4: Hearing on application of Pipestone County Telephone Co., Jasper, for authority to change rates.

Jan. 9: Hearing on application of Harmony Telephone Co. for authority to change rates.

Jan. 9: Hearing on application of City and Farmers Telephone Co., Rushford, for authority to change rates.

Jan. 10: Hearing on application of Farmers Telephone Co., Emmons, for authority to change rates.

Jan. 10: Hearing on petition of Delavan Telephone Co. for authority to change rates.

Jan. 12: Hearing on application of Farmers Mutual Telephone Co., Wanamingo, for authority to change rates.

Jan. 12: Hearing on application of Pine Island Telephone Co. for authority to change rates.

**Oklahoma Corporation Commission**

Jan. 9: Hearing on application of McCloud Telephone Co., for authority to increase rates.

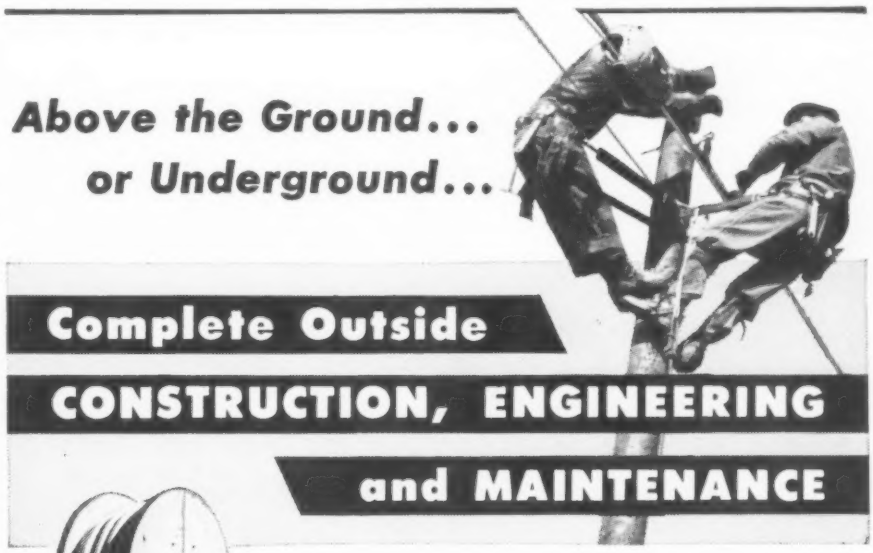
Jan. 17-19: Continued hearing on application of Southwestern Bell Telephone Co. for increased rates in Oklahoma.

**Wisconsin Public Service Commission**

Jan. 4: Hearing on application of Marquette & Adams County Telephone Co., Oxford, for authority to increase rates and abolish unlimited service between its exchanges and Adams, Montello and Westfield.

Jan. 4: Hearing on application of Commonwealth Telephone Co., Madison, for authority to discontinue unlimited service between its Montello exchange and the Packwaukee, Endeavor and Oxford exchanges of the Marquette & Adams County Telephone Co.

Jan. 5: Hearing on application of Commonwealth Telephone Co. for authority to divide a rural line connected to company's Cascade and Plymouth exchanges.

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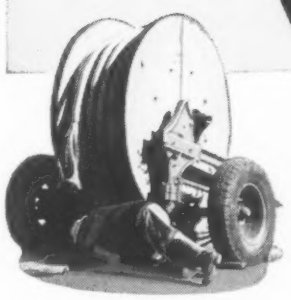

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# THE PLANT MAN'S *note book*

BY RAY BLAIN TECHNICAL EDITOR

THE telephone number of a flour concern in Birmingham, Ala., is similar to the number which gives the correct time as a courtesy of a local gas company. The flour company receives a lot of calls from people who ask the time. Obligingly, they gave the callers the correct time, but eventually getting so many wrong number calls grew tiresome. So, now they tell the correct time—and repeat a neat little commercial for their flour.

• • •

It has been said: "Six-syllable words are too often the exhaust of a one-cylinder man."

• • •

We are advised upon good authority that popped popcorn makes a much better packing for the shipment of fragile equipment and instruments than excelsior, shredded paper, etc.

• • •

The time required to assemble a television set at Westinghouse is 6½ hours, of which 1½ hours are devoted to inspections and tests. There are 19 of the latter.

• • •

According to a news report, the New York state supreme court has ruled that a husband may tap his wife's telephone calls to find out if she is untrue to him.

It was decreed that a telephone subscriber has a right to know if his own line is being used against him.

• • •

Someone has said that subsidies are narcotics, like opium, which dull personal initiative and stifle enterprise.

• • •

We have received numerous queries of late concerning the advisability of maintaining exchange cables under constant gas pressure. Many persons appear to believe that if exchange cable is maintained under pressure their troubles will be over.

While we have no doubt that sometime this practice will be commonly employed, in our opinion, the average telephone company could not make advantageous use of it now. It is never an easy task to maintain toll cables under constant pressure even when all equipment and trained personnel are available. It would, therefore, be almost an impossible task in many exchanges to gas-proof an old local distribution system. Probably hundreds of small openings would cause escaping gas even though they were not presently admitting moisture to the cables.

Until such time as a good gas-proof cable terminal can be available at a reasonable cost and gas plugs can be installed at a lower cost, we doubt that many exchange cable systems will be maintained under constant gas pressure. Until these new items are available, it is our opinion that the average company should be content with flash testing splices when completed or when trouble is suspected in their exchange cable distribution systems.

• • •

One out of every 16 persons in the United States suffered a disabling injury because of an accident in 1949.

• • •

It is reported that in Washington, D. C., an electric iron which was left turned on burned through an ironing board, started a fire, fell to the floor and melted a lead water pipe which put out the fire.

• • •

It is satisfying to note that numerous innovations are being made which make the use of the telephone more convenient.

In many cities telephones for quick summoning of cabs are installed along the streets at regular intervals. Numerous trains are equipped with radiotelephones and planes will be similarly equipped soon. Many stores and shops have lines connected to apartment house switchboards so that tenants can call them without going through the main exchange. Business concerns are installing more lines and trunks so that customers will not get a busy signal.

Outdoor type booths are being installed in considerable number. They are not only a convenience, but make it possible to reach help quickly in an emergency.

• • •

The hanging handset type telephone equipped with a long retractable cord proves ideal for installation in the kitchen. It permits the user to perform simple tasks such as turning down the heat under a pot which might be boiling over without laying down the handset or interrupting the conversation.

• • •

Public address systems prove a convenience when one person must address several people. In the old days a man shouted through a megaphone to describe points of interest to the passengers on sightseeing buses. Nowadays, the driver speaks into a microphone with concealed speakers in the seats that keep all passengers informed as to what they should watch.

• • •

A real estate broker in New York City pleaded guilty of talking over the telephone while rolling along Interborough Parkway.

"That's the scientific version of one-armed driving," remarked the judge as he imposed a two-dollar fine.

The law requires that one should park while talking on the telephone even if the telephone is installed in the car. It would appear that this would impose a hardship on cab drivers who use the mobile telephone for dispatching.

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# Features of Cable

*(Continued from page 18)*

of every station. This type of protection is also considered necessary on rural joint construction. To reduce the static voltage, center tap drainage coils should be placed at 2½ mile intervals.

In some instances on rural construction, short sections of lines must be of joint construction, because of some special construction problem and specific protection must be given to these sections alone. Again the No. 99-A protector can be used to meet these conditions by installation on the first and last poles of the joint line. Ground wires should be connected to the power neutral as previously described.

To the telephone companies just embarking upon an extensive rural program, the use of an effective protective program may appear rather costly, but if results are studied, the future savings in man-hours, equipment and circuit outages, will be apparent.

### Breaking Down High Resistance Faults by Cable Flashing

Moisture cable faults, when the resistance of the fault is above the limits for which a cable tone may be used to locate the trouble, can in many instances be reduced to a solid fault by applying a high dc voltage derived from radio batteries.

Four hundred and fifty volts from 10 batteries have been used but many plant engineers now prefer 630 volts from 14 units, because this added voltage does a better job.

The current is applied at intervals through heavy contacts, with the result that when the cable wires are welded together at the fault, a heavy arc will appear between the contacts when they open, indicating that the resistance of the fault has been broken down, usually to a solid trouble which may then be located by using a tone and exploring coil.

Moisture faults above certain resistance limits are not likely to break down, but rather will dry out when the current is applied, in which event some other fault locating methods must be used.

It is advisable to choose a short, or cross, for flashing in preference to a ground. However, if no short or cross can be broken down, a wire may sometimes have a high resistance ground which will weld to the sheath or some other ground when the current is applied. As a note of caution, cables known to have a low dielectric insulation characteristic should not be subjected to flashing current.

Only competent, designated persons should be allowed to handle and apply the flashing equipment because serious injuries to personnel and apparatus may occur by careless or incompetent handling.

### Non Lead Sheath Cables

Aluminum is currently being field tested in an effort to find a satisfactory material with which to replace critical lead as a sheath. To date no conclusions have been reached.

Other non-lead sheath cables with plastic or other composition insulation and sheaths are daily coming into increasing use for interior service, as well as for underground and aerial installations. Such aerial cables are being supported by and lashed to strand in the same manner as are lead sheath cables.

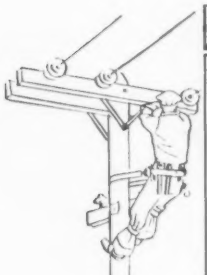
New splicing techniques are being developed for splicing and terminating these cables. One method is to bring both ends of a cable to be spliced through two metal fittings on the bottom of a pole mounted terminal and to join the wires inside the housing. This method does not provide for splices that must be made within the span on new work or for making sheath closures where pair or sheath damage has been repaired.

A second method is to slip about 12-in. lengths of lead sheathing over the ends of the cable to be spliced, placing them so that the distance between the two pieces of sheath provide sufficient space in which to splice the individual pairs.

After the wires have been spliced and soldered (if this is specified) and also taped properly with approved composition tape, then the splice is covered with several layers of tape in the same manner as muslin or a paper insulated splice.

The lead sleeve which had previously been slipped over one end of the cable may then be placed over the splice and attached to the short lengths of lead sheath by solder. Next, the points where the non-lead sheath cable emerges from the ends of the short lengths of lead sheath are taped with several layers of approved tape and finally painted.

Two or three-way splices may be constructed in the same manner, even bringing out a small stub cable which may be lead sheath from the splice in the main cable to the terminal. Composition rubber insulated stub cables, in use in some localities for many

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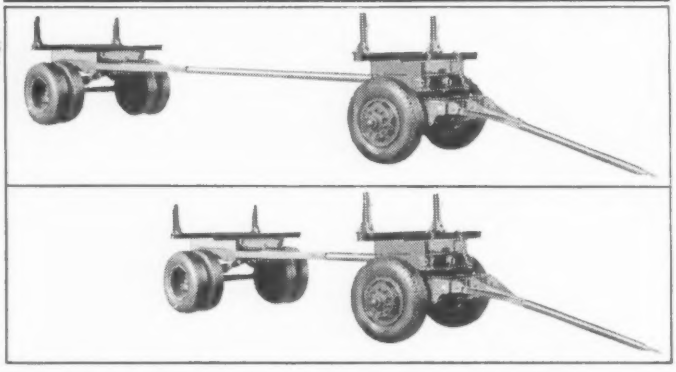

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years, are ideally suited as stub cables on such installations.

Still another and very recent development is a rubber splice-housing which has compression fittings to grip the composition sheath and seal out moisture.

**Transmission Characteristics of Cable**

The transmission loss imposed on any circuit by the cable pair is of great importance and must be carefully considered when engineering a cable construction job in order to determine in advance what the ultimate over all loss might be, including subsequent cable extensions.

By consulting transmission loss tables, one may calculate the total loss of the proposed cable circuit and, thereby, choose the correct gauge to meet the specified attentuation limits.

We also have the choice of loading the cable when space does not permit the heavier gauges of wire to be used or the combination of loading and heavy gauge pairs where such cable size, costs, etc., are permissible.

The following portion of a table gives the loaded and non-loaded transmission loss per mile in decibels (DB) for several of the most commonly used cable wire gauges, and illustrates the effect of loading on the transmission loss:

| Gauge | Capacity | DB Loss Non-Loaded | DB Loss 88 MH Loading | Load Spacing |
|---|---|---|---|---|
| No. 22 | 0.083 | 1.854 | 0.814 | H 6000 ft. |
| No. 19 | 0.062 | 1.123 | 0.357 | H 6000 ft. |
| No. 16 | 0.062 | 0.786 | 0.185 | H 6000 ft. |

The H (6000 ft.) 88 Millihenries (MH) loading given above is considered light loading. By spacing the 88 MH loading 3,000 ft., we may further reduce the transmission loss without impairing the quality.

Instead of the 88 MH light loading spaced 6,000 or 3,000 feet, it is possible to further reduce attenuation losses by the use of medium or heavy loading where such loading is permissible.

As the weight of the loading is increased, greater penalties in quality of transmission are imposed; that is, the band of frequencies passed by the heavy loading are much narrower than

## Answers to Questions on Page 21

(1) Say, "Are you using a dial telephone?"

(2) A note should be made of the essential details and referred to the supervisor. The supervisor will refer the case to the person locally designated to handle corrections in the information records and telephone directories.

(3) Yes.

(4) The following conditions may be referred to the supervisor:

(A) A situation reaches a point where you are not sure that your knowledge and ability are adequate to handle it properly.

(B) The time necessary to care for a situation properly will interfere with service on other calls.

(C) The situation requires the assistance of some one who is in a position to move about. Such cases include consulting a record not regularly located at all switchboard positions.

(D) The customer makes a criticism of the service.

(5) The phrase, "Will you speak to my supervisor, please? I will connect you."

On the job records prove that the Neale Model D Pull-type Cable Spinner speeds new work, keeps line charges low.
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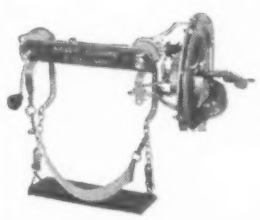

Neale Model B One Man Cable Spinner operates from ground or strand.

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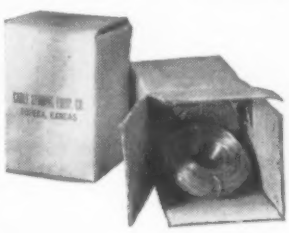

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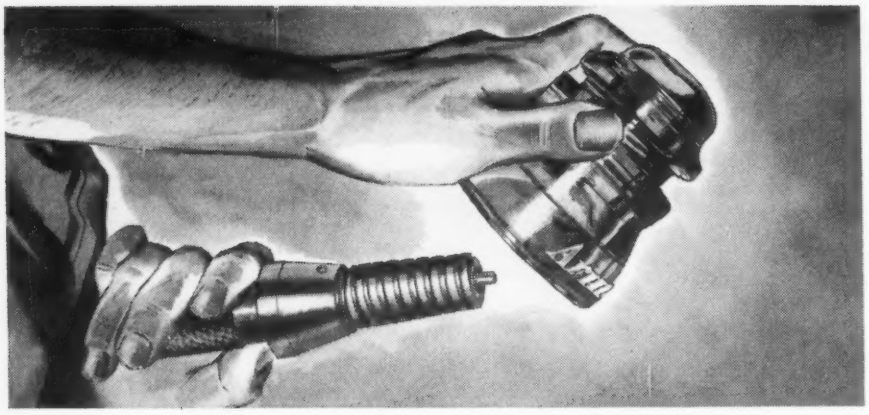

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those passed by light loading. The cut-off at the top and bottom of the band of frequencies causes distortion, etc.

Subscriber circuits are not generally loaded because the length of the cable pairs does not exceed the maximum specified transmission limits for such service; however, it is possible to load such circuits successfully wherever necessary to obtain the desired results.

Also, as the length of any cable is increased so is the attenuation greater in direct proportion. Therefore, a limit is reached where neither heavier gauges nor loading will provide satisfactory transmission, and repeaters must be used.

Generally, however, on the small system in which reasonably short lengths of subscriber cables are required, or on short cross country toll cables connecting central offices, no loading on the subscriber cables and light loading on the toll cables will provide satisfactory transmission.

Carrier systems on cables of sufficient length to warrant the cost of this equipment are coming into increasing use. In such cases the loading, if any, is removed and the desired transmission obtained through the carrier equipment.

The use of quadded cable will provide one additional circuit for each two physical pairs in the cables. However, several important conditions must be met in the construction and maintenance of quadded cables. First, the quads must be balanced during construction and, second, they must be kept that way after they are in service.

Trained personnel and capacity unbalance bridges are required for measuring the inherent quad balances and matching the quads in each direction from the splices. Moreover, when the cable is once in service, the quad balances should not be disturbed by the cutting in or out of even short sections of cable. To do so without rebalancing the quads may cause serious cross-talk, etc. Also, such rebalancing becomes a major problem especially when most of the quads in the cable are working circuits.

This should not be construed to mean that the use of quadded cable is not recommended, but rather to point out several factors which, if disregarded, will result in unsatisfactory service.

The phantom, as well as the physical circuits furnished by the individual quads, may be used as dial circuits by installing composite equipment on both ends of the lines, whereby dial legs are provided for dialing.

Many factors which are governed by costs, specified tolerances, types of systems, kind of service, etc., must be con-

sidered when planning the cable installation. Space does not permit the detailed discussion of these features.

### Central Office Cable Entrance Vaults and Cable

Cable work is usually only as good as it looks. The cable entrance vault of all central offices should be considered a show place for visitors who will be favorably impressed by good, neat appearance of the cables and workmanship.

### Testing Equipment

Testing equipment in the hands of trained personnel is necessary to accomplish new work and more satisfactory and speedier maintenance work where speed really counts.

For the very small system where little or no cable is used, one of the most useful instruments, aside from the talking and signaling test set, is a multi-meter with which volts, amperes, and resistance may be accurately measured. This meter together with a 45-volt radio battery provides the means for making many of the tests that can be made from the ordinary test board.

There are available meters having scale graduations whereby resistance as low as .2 ohm may be measured with sufficient accuracy for this type of work. A themulti-meter is also useful as a volt or ohmmeter for quick checking of cable faults when locating cable trouble in large cable plants. Tone and exploring coils for locating faults having resistance values up to 2,000 ohms are useful in any plant, large or small. There is also a definite use for Wheatstone bridges, meggers or bridge meggers, and capacity meters, as well as amplifiers for the proper maintenance of the cable plant.

Each of these instruments, if properly used, will facilitate the analysis and clearing of many cable plant faults, and will be useful in making measurements in other departments of the plant.

There also are many simple devices and gadgets that may be used to advantage in cable construction and maintenance work, which are too numerous to mention here.

And last, but by no means the least important feature of the cable plant, are the records showing all the pertinent facts in as simple form as possible, yet providing accurate information.

The number of pairs and the gauge of the wire inside the lead sheath cannot be determined by looking at the outside of the cable. Finding the exact location of a buried cable, although we have a tone amplifier and exploring coil for such purposes, can become a difficult job unless we have good records.

It is valuable to know exact conduit locations when other utilities are constructing underground systems in the same area where the telephone cables are located. Furnishing accurate locations to the engineers of other utilities will often avoid service interruptions and costly repair jobs for the telephone company.

We have briefly mentioned a number of items covering construction and maintenance of cable, realizing that there are many more features that might be included and presented in greater detail. However, we hope to have suggested some facts that will be helpful, especially to the smaller plant personnel.

V V

**"The basic industries of the country, together with the transportation, communication and research facilities, are in excellent shape. Our one weakness is the unsound financial policy of our government. Through its wasteful and reckless expenditures we are seriously impairing the margin of financial safety and undermining our national security."**
**—Neligh (Neb.) *Leader*.**

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## OBITUARIES

FRANK C. PAGE, a vice president of the International Telephone and Telegraph Corp., and a son of former Ambassador Walter Hines Page, died recently at his residence in Washington, after an illness of four months. He underwent a major operation a year and a half ago. His age was 63.

Born in Brooklyn, Mr. Page spent the first three years of his career, 1909-12, as a bond salesman for the banking firm of White, Weld & Co. During the next three years he was a partner in Page Brothers of Aberdeen, N. C.

Then Mr. Page joined the editorial staff of Doubleday, Page & Co., Garden City, L. I., and he remained in this work until the United States entered the first World War, when he entered the Army Air Service, in which he attained the rank of major.

On his return to civil life after the Armistice, Mr. Page was successively editor of *Country Life in America*, 1919-20; managing editor of *The Journal of Winston-Salem*, N. C., 1920; secretary of the American Relief Administration, New York, 1920-23, and department manager of the United States Chamber of Commerce, 1923-28.

He became a vice president of the International Telephone and Telegraph Corp. in 1928. He was a director of that company, and of All-America Cables and Radio, The Commercial Cable Co. and the Cuban-American Telephone & Telegraph Co., of which he was also a vice president.

He leaves his widow, who was Anna Harbison at their marriage in 1920; two sons, Shelby H., and Allison F., and a daughter, Cecily.

• • •

MRS. NELLE C. WOODS, 80, wife of Frank H. Woods, chairman of the board


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of the Lincoln (Neb.) Telephone & Telegraph Co., died Dec. 19 in Lincoln.

Mrs. Woods was the daughter of Thomas Cochrane, a pioneer businessman of Lincoln, and she and Mr. Woods celebrated their 50th wedding anniversary in 1944. She was a past president of the Nebraska Art Association, and prominent in the work of various civic, social, religious and cultural organizations. She is survived by her husband and three sons, Thomas C., president of the Lincoln company, and Henry C. and Frank H. Jr., Chicago.

V V

## Southern Bell T&T Progress Recognized At N.C. Dinner

Leading citizens of Shelby, N. C., and Cleveland County decided recently to show their appreciation for the splendid service improvement and expansion program that the Southern Bell Telephone & Telegraph Co. has carried out in the city and county. Their method of expressing their appreciation was unique in the annals of American business.

The company was honored and commended for its program at the annual dinner of the Shelby Chamber of Commerce and Merchants Association on Dec. 11.

Present were some of the state's leading dignitaries, including Col. J. W. Harrelson, Chancellor of North Carolina State College; United States Sen. Clyde R. Hoey, a former governor of North Carolina, and state Sen. Lee B. Weathers. These three men and President Hal S. Dumas of the company spoke to the gathering.

Col. Harrelson, in reviewing progress made by the company, pointed to the fact that 10 years ago there were 2,116 telephones in Cleveland County, as compared with 7,811 today. Although he did not give a breakdown as to the location of the added telephones, many have been gained in rural areas and in the smaller communities. Although Shelby is the county seat and is operating under a new dial system, many of the smaller communities have an extended service area.

Col. Harrelson summarized progress telephone-wise by saying: "We have in statistics a thrilling story of telephone expansion in the county."

Responding to Col. Harrelson's address, Mr. Dumas stated that Southern Bell has invested more in expansion during the past five years than its investment totaled at the end of 1945 after 67 years of operation.

Mr. Dumas assured his audience that the company is mindful of the communications needs that face this country during the present international crisis. He said: "You can count on your communications system to stand by this country in the hour of its need, whatever happens."

V V

## ASA Approves 149 Standards in 1950

The American Standards Association has approved 149 standards in 1950, according to Harold S. Osborne, chief engineer of the American Telephone & Telegraph Co., and vice president of the standards association. Mr. Osborne reported this fact at the opening session of the National Standardization Conference, held in New York in November. The conference is sponsored by the American Standards Association, which is the national clearinghouse for industrial, engineering, safety and consumer standards in the United States.

Of these 149 American Standards, Mr. Osborne said, 66 are new and 83 are revisions of standards previously approved. In addition, he said, the association has reviewed and reaffirmed 24 standards without change.

The 66 new standards bring the total of American Standards in effect to 1,139.

Sectional and technical committees of the ASA, Mr. Osborne said, held about 300 meetings dealing with the formation of standards during the year. He declared that the various branches of the telephone industry have 160 representatives working on committees formulating standards under ASA procedures.

V V

**"Our national leaders have maneuvered us into a position where Americans must either tighten their belts or run the risk of losing their pants."—Edmonds (Wash.) Tribune-Review.**

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*For Details See Bulletin 159*

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- T-5—0.5 amp. 10-16 V. DC talking
- T-6—1.0 amp. 5-8 V. DC talking

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## In the Nation's Capital

*(Concluded from page 14)*

bureaus themselves in competition for strategic materials and manpower at a time when it is so badly needed for mobilization. This may be the year that Senator Byrd of Virginia and other members of his long-suffering "economy bloc" in Congress may be able to make some headway in clipping out some of the frills and pork barrel activities of old-line federal departments.

This writer expects that early in the new year a strict economy program will be launched by Congress to comb and screen every dollar spent by federal agencies, to test their necessity in relationship to the over-all emergency. We cannot expect President Truman or his adminstration to be too enthusiastic about this. But as long as Congress holds the purse strings, it is in a position to trim the fat wherever it finds it in the federal budget.

V V

### D. C. Gibson Umpires Rose Bowl Game

D. C. Gibson, well known vice president of Leich Sales Corp., acted as umpire of the Tournament of Roses football game on New Year's Day at Pasadena, Calif. This traditional game this year was played by the University of Michigan and the University of California.

Being chosen to officiate at this nationally famous contest is perhaps the greatest honor that can be paid to a football official. Mr. Gibson has been a Big-Ten Conference football official for the past nine years, and won All-American honors at Northwestern University in his under-graduate days.

V V

### We Are Sorry

In the list of committees of the United States Independent Telephone Association, published on page 12 of the Dec. 31 issue of TELEPHONY, the name of C. D. Manning, Chicago, Ill., vice president of the Kellogg Switchboard & Supply Co., was inadvertently omitted from the membership of the association's executive committee.

V V

**>> A partially deaf woman in Nevada, Mo., who cannot hear the telephone ring, has trained her wirehaired terrier to find her and nudge her toward the instrument when anyone calls. Then she dons her hearing aid and carries on the conversation.**

## Gokey Named by Highway Trailer

The election of F. C. Gokey as executive vice president of the Highway Trailer Co., Edgerton, Wis., was announced recently by H. L. Charlton, president.

Mr. Gokey, who is a native of Edgerton, has been connected with the company for the past 24 years.

Starting in the plant and moving into sales, he was instrumental in building up a public utilities equipment division that has become a major segment of the company's business. The company today ranks as one of the largest

F. C. GOKEY

suppliers of this type of equipment as well as commercial truck trailers and tanks. Mr. Gokey is a member of the Society of Automotive Engineers.

At various times during his service with the company, Mr. Gokey took an active part in domestic and export sales organization, manufacturing, engineering, general administrative and labor relations work. During World War II he worked closely with the government in developing special equipment for the U. S. Signal Corps and the Army Corps of Engineers.

V V

## 28% Increased Space For Leeds & Northrup

Acquisition of approximately 85,000 sq. ft. of additional floor space by Leeds & Northrup Co., Germantown, Pa., manufacturer of electrical measuring instruments, automatic controls, and heat-treating furnaces, has been announced by C. S. Redding, president.

The added space is in two parcels. One is a three-story, 50,000 sq. ft. building and another property totaling 35,000 sq. ft. Together, they increase the company's Philadelphia floor space by 28 per cent, to a total of almost 10 acres.

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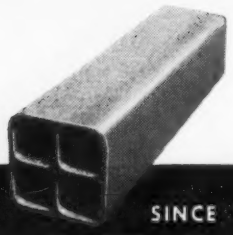

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L. F. SHEPHERD, president and general manager, Pennsylvania Telephone Corp., ready to throw the switch for recent cutover of Somerset, Pa., exchange from manual to dial operation. In the center, C. H. TENNANT, Somerset manager, times the operation. On the left is J. B. FOSTER, chief installer of step-by-step equipment for Federal Telephone & Radio Corp.

## Somerset, Pa., Exchange Converted from Manual to Dial

Pennsylvania Telephone Corp., subsidiary of General Telephone Corp., converted its 1,100-line manual exchange at Somerset, Pa., to dial operation, effective at midnight, Oct. 28. The new dial system, initially comprising 1,440 lines and 2,600 terminals of MAX type step-by-step switching equipment, was produced by Federal Telephone & Radio Corp.

The Somerset installation, housed in an entirely new, modern-type, air-conditioned central office building, is one of several large cutovers made by Pennsylvania Telephone Corp. under its continuing program of construction and improvement. The installation includes a two-position toll test panel and a single-position local test panel.

At a later date the Somerset exchange will cut into service inter-toll equipment for working with a 12-position toll board. Intertoll equipment with this board will also be installed at Johnstown, Pa. The system subsequently will be provided with facilities for operation in conjunction with the national operator toll dialing plan.

Four additional toll circuits for Meyersdale, three for Boswell and three for Confluence, Pa., will be provided by the installation of Federal's 9-H-2 medium-haul carrier equipment.


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V V

## Graybar Appoints Branch Managers

Appointment of two new branch managers in the Graybar Electric Co. New York district, was announced recently by Herbert Metz, district manager.

John T. Porter, former manager of the Albany house, has been transferred to Rochester, N. Y. in the same capacity. Frank C. Sweeney, formerly manager, telephone sales and broadcast equipment sales for the district, has been appointed manager at Albany succeeding Mr. Porter.

Mr. Porter, a native of Johnstown, N. Y., joined Graybar as a warehouseman at Buffalo in 1936. He was a service clerk and salesman before becoming manager at Albany in 1948. A graduate of Bucknell University, he served as an army lieutenant in the European Theatre of Operations during World War II.

Mr. Sweeney is a graduate of Massachusetts Institute of Technology. He

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joined Graybar as a street lighting specialist in New York City and worked in office sales and as a salesman before entering service as a captain in 1942. He attained the rank of colonel before his separation in June, 1946. Soon after his return he was made manager, broadcast equipment sales at New York and in 1948 was given the added responsibility of manager, telephone sales.

V V

### Kellogg Announces Change In Sales Division

K. C. Tompers has been named district manager of the Minnesota-North and South Dakota territory for the Kellogg Switchboard & Supply Co., according to F. M. Parsons, sales manager.

Previous to this appointment Mr. Tompers served Kellogg as an installer, then transferred to the sales division to become the field representative for the state of Washington.

Mr. Tompers will be located in St. Paul, Minn.

V V

### Raytheon Elects Adams

C. F. Adams, Jr., president of Raytheon Mfg. Co., Waltham, Mass., has announced the election by the board of directors of Capt. David R. Hull, USN (Ret.), as a vice president of the company.

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